

WHAT IS CLAIMED IS:

1. A driving device for an armature which is slidably provided within a housing filled with a fluid and which divides an inside of the housing into two fluid chambers, the driving device sliding the armature inside the housing by electromagnetic force generated by energizing an electromagnetic solenoid, the driving device comprising:

a communicating hole in the armature enabling the fluid to pass between the two chambers; and a control portion that changes an amount of current supplied to the electromagnetic solenoid,

wherein the communicating hole is formed such that the fluid passing through the communicating hole and out from the armature when the armature slides flows out at an angle to, and to the side of, a center axis of the armature, and

the control portion changes the amount of current supplied to the electromagnetic solenoid at a first predetermined timing and imparts a force to the armature which is based on the outflow of the fluid, and which is able to rotate the armature in a direction of rotation around a center axis of the armature.

2. The driving device according to claim 1, wherein the first predetermined timing is when the armature starts to be driven.

3. The driving device according to claim 1, wherein the first predetermined timing is when the armature stops being driven.

4. The driving device according to claim 1, wherein the change in the amount of current supplied to the electromagnetic solenoid at the first predetermined timing is larger than a difference between an upper limit value and a lower limit value of a control range of the amount of current between the time when the armature starts to be driven and the time when the armature stops being driven.

5. The driving device according to claim 4, wherein the armature is used in a metering valve that is provided in a fuel supply system of an internal combustion engine.

6. The driving device according to claim 5, wherein the control portion controls the amount of current supplied to the electromagnetic solenoid within the control range when the internal combustion engine is running, and makes the change in the amount of current supplied to the electromagnetic solenoid larger than the difference between the upper limit value and the lower limit value of the control range at a second predetermined timing.

7. The driving device according to claim 6, wherein the second predetermined timing is at the beginning of startup of the internal combustion engine when an ignition switch is turned on.

8. The driving device according to claim 6, wherein the second predetermined timing is at the beginning of shutdown of the internal combustion engine when an ignition switch is turned off.